

REMARKS

An excess claim fee payment letter is submitted herewith for one (1) excess claim.

Claims 1-6, 8-12, 14-18 and 20-24 are all the claims presently pending in the application. Claim 1 has been amended to further clarify the invention and claim 24 has been added. Claims 1-2, 8, 14 and 21-23 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicant also notes that, notwithstanding any claim amendments herein or later during prosecution, Applicant's intent is to encompass equivalents of all claim elements.

Applicant gratefully acknowledges that claims 21-23 have been allowed.

Claims 14-17 and 20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tsai (U.S. Patent No. 5,677,777). Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Umemoto (U.S. Patent No. 5,013,916). Claims 2-6 and 8-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai, in view of Arai, et al. (U.S. Patent No. 6,335,982). Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai, in view of Arai, et al.

These rejections are respectfully traversed in the following discussion

I. THE CLAIMED INVENTION

One exemplary embodiment of the claimed invention is directed to an image scanner including a conveyor, a first light source, a second light source, an image information reader and a light source switching controller. The conveyor conveys a manuscript including image

information to be read at a predetermined reading position (e.g., and as further exemplarily defined by new dependent claim 24, a predetermined stationary reading position) of a conveying route. The first light is located on one side of the conveying route and the second light is located on the other side of the conveying route. The image information reader reads the image information in the manuscript at the predetermined stationary reading position. The light source switching controller controls switching between the first and second light sources to read the image information in the manuscript. The light source switching controller renders the first light on when the image information is defined by transmitting light through the manuscript and renders the second light on when the image information is defined by light reflected from the manuscript.

Another exemplary embodiment of the present invention may include a manuscript judging device which determines whether the manuscript is the type which may be read by transmitting light through the manuscript or whether the manuscript is the type which may be read by reflecting light off the manuscript.

As shown in Fig. 1, conventional image scanners will hold a manuscript 75 stationary while the image on the manuscript 75 is read by scanning a sensor 78 in a scanning direction 77. Such scanners require elaborate mechanisms and a large amount of space to move the scanner 78 in this manner. Thus, not only do these scanners require elaborate and expensive mechanisms to move the scanner, but they also require a large amount of space to reserve an adequate amount of space for the sensor 78 to pass through while scanning. This problem is especially problematic when space must be reserved on both sides of the manuscript to allow reflection type scanning using a first lamp 79 on a first side and also to allow transmission type scanning using a second lamp 84 on a second side of the manuscript.

Another problem with these conventional image scanners is that they also require a user to determine whether the image on the manuscript is capable of being read by transmission or through reflection of light. Thus, a user is required to make this determination.

By contrast, as shown for example in Fig. 3, the present invention maintains a predetermined reading position (between first and second glass plates, 112 and 121) while causing the manuscript 111 to be conveyed past the predetermined reading position in order to scan the image on the manuscript 111. As a result, the present invention has a compact and simple design. The compact design of the present invention also enables both reflection and transmission type scanning.

Additionally, the manuscript judging device is capable of determining whether the image on the manuscript is capable of being read by transmission or reflection of light without requiring input from a user (i.e. through the use of a selection switch either in software or hardware). The result of this determination may then be used to configure the image scanner by, for example, turning on the appropriate light.

II. THE PRIOR ART REJECTION

A. The Umemoto et al. reference in view of the Kojima et al. reference

Regarding the rejection of claim 1, the Examiner alleges that the Kojima et al. reference would have been combined with the Umemoto et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems.

Specifically, the Umemoto et al. reference is directed to fulfilling a need for a built-in type of radiation image recording and read-out apparatus which is small and inexpensive (col. 3, lines 4-6). More particularly, the Umemoto et al. reference is directed to providing a radiation image recording and read-out method which enables stimulating rays having comparatively long wavelengths to be used during the readout of a radiation image (col. 3, lines 28-32).

In contrast, the Kojima et al. reference is specifically directed to a method and device for erasing a radiation image (col. 1, lines 10-16). In particular, the Kojima et al. reference is directed to providing a method and device for erasing a radiation image in which both an image of an electron on an ordinary trapping level and one of an electron on a deep trapping level are efficiently erased (col. 3, lines 38-43).

Therefore, one of ordinary skill in the art would not have been motivated to modify the recording and read-out apparatus disclosed in the Umemoto et al. reference based upon the disclosure of a method and device for erasing an image as disclosed in the Kojima et al. reference because the Umemoto et al. reference is directed to providing a small and inexpensive recording and read-out apparatus while the Kojima et al. reference is directed to the completely different problem of erasing a radiation image as described by the Kojima et al. reference. In other words, one of ordinary skill in the art who was concerned with providing a small and inexpensive recording and read-out device as disclosed by the Umemoto et al. reference would not have been motivated to modify the device disclosed by the Umemoto et

al. reference based upon the disclosure of the Kojima et al. reference because it is directed to the completely different and unrelated problem of providing an improved erasing device.

Thus, the references would not have been combined, absent hindsight.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, the Examiner does not even support the combination by identifying a reason for combining the references.

The Examiner alleges that it would have been obvious “to have modified an image reading and recording apparatus of Umemoto et al. (sic) to include: light source control means is adapted to perform controlling the light that illuminate on the document from first (sic) and the second light source” because “it would have provided users a method that includes a means for controlling at least one of the two light source in a manner that the light sources is illuminated in a ratio of amount of light in the rang (sic) of user’s perception.” (emphasis added).

However, contrary to the Examiner’s allegation, the applied references do not teach or suggest providing a light controller to control at least one of the two light source in a manner so that they illuminate in a ratio of light in a range of the user’s perception. Rather, the Kojima et al. reference disclose providing a light controller 18 for controlling at least one of the two light sources such that the second erasing light source and the first erasing light source is in a ratio of 15/85 to 45/55 (col. 5, lines 25-33). In particular, the Kojima et al. reference discloses controlling the ratio of light to improve the erasing efficiency (see, for example, col. 8, line 67 - col. 9. line 19).

Therefore, contrary to the Examiner's allegation the light controller controls the ratio of light to improve the erasing efficiency, and has absolutely nothing to do with a "user's perception" as alleged by the Examiner.

Moreover, even assuming arguendo that one of ordinary skill in the art would have been motivated to combine these references, the combination would not teach or suggest each and every element of the claimed invention. None of the applied reference teaches or suggests: 1) a first light which emits light onto a predetermined reading position; 2) a second light which emits light onto the same predetermined reading position but from an opposite side; 3) a light source switching control means which renders the first light on when the image is defined by light transmitting through the manuscript and which renders the second light on when the image information is defined by reflected light; and 4) an image defined by transmitted light or reflected light.

As explained above, these features are important for providing a compact and elegantly simple design. The compact design of the present invention is also able to provide for both reflection and transmission type scanning.

Contrary to the Examiner's allegation, the primary erasing light 111 of Fig. 3 of the Umemoto et al. reference does not emit light onto a predetermined reading position. Rather, the Umemoto et al. reference discloses a primary erasing light 111 which erases an image stored on the stimuable phosphor sheet 102 (col. 12, lines 47-55).

Further, contrary to the Examiner's allegation, the secondary erasing light source 113 of Fig. 3 of the Umemoto et al. reference does not emit light onto a reading position, let alone the same predetermined reading position. Rather, the Umemoto et al. reference

discloses a secondary erasing light source 113 which irradiates secondary erasing light (col. 12, line 65 - col. 13, line 2).

Indeed, the Umemoto et al. reference clearly discloses that only the semiconductor laser 23 (of Fig. 1) and the semiconductor laser 107 (of Fig. 3) emit radiation at a reading position.

Additionally, contrary to the Examiner's allegation, the Umemoto et al. reference does not teach or suggest an image defined by reflected light. Rather, the Umemoto et al. reference discloses exposing a stimuable phosphor sheet which emits light when exposed to stimulating rays. It is the emitted radiation that defines the image in the phosphor sheet, not the reflection of light. Emission of light is a mode of radiation which is completely different from reflection.

Further, the Examiner fails to point out where in any of the applied references the disclosure of an image defined by light transmission as recited by claim 1.

The Kojima et al. reference, like the Umemoto et al. reference also does not teach or suggest: 1) a first light which emits light onto a predetermined reading position; 2) a second light which emits light onto the same predetermined reading position but from an opposite side; 3) a light source switching control means which renders the first light on when the image is defined by light transmitting through the manuscript and which renders the second light on when the image information is defined by reflected light; and 4) an image defined by transmitted light or reflected light.

Clearly, these novel features are not taught or suggested by the Kojima et al. reference. Indeed, the Kojima et al. reference is completely unrelated to the claimed invention.

Therefore, the Examiner is respectfully requested to withdraw this rejection of claim 1.

Lastly, regarding the means plus function recitations, the Examiner has failed to interpret the claims to read only on the structures or materials disclosed in the specification and "equivalents thereof." The Federal Circuit has made it clear that the Office is required to interpret means plus function language in accordance with 35 U.S.C. § 112, sixth paragraph (see M.P.E.P. §2106; *In re Donaldson*, 16 F.3d 1189, 1193 (Fed. Cir. 1994) and *In re Alappat*, 33 F.3d 1526, 1540 (Fed. Cir. 1994)). Clearly, the Examiner has failed to interpret the claims to read only on the structures or materials disclosed by the present specification and "equivalents thereof."

B. The Tsai reference in view of the Arai et al. reference

Regarding the rejection of claims 2-6, 8-12 and 18, the Examiner alleges that the Arai et al. reference would have been combined with the Tsai reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems.

Specifically, the Tsai reference is directed to a document scanner. In particular, the Tsai reference is directed to providing a scanner which can be adapted to the location of a floppy diskette drive of a computer (col. 1, lines 48-50 and 65-67).

In contrast, the Arai et al. reference is specifically directed to an apparatus for inspecting a streak on a sheet product. In particular, the Arai et al. reference is directed to an inspection apparatus for use in a production plant to detect defects and which is especially capable of detecting defects which happen to be streaks (col. 1, line 9 - col. 2, line 23). One of ordinary skill in the art of document scanning who was concerned with adapting a document scanner to the location of a floppy diskette drive of a computer as disclosed by the Tsai reference would not have been motivated to modify such a document scanner based upon a sheet product inspection apparatus which is specifically concerned with detecting sheet defects on a sheet product production line as disclosed by the Arai et al. reference. Thus, the references would not have been combined, absent hindsight.

The Examiner appears to have misunderstood this argument. The Examiner appears to believe that Applicant is asserting that these references would not have been combined because they are directed to "different area." However, this is incorrect. The Applicant never argued that these references are directed to a "different area."

Contrary to the Examiner's apparent misunderstanding, the Applicant argues that one of ordinary skill in the art would not have been motivated to solve the problem of adapting a document scanner to fit within a floppy disk drive bay within a computer case as disclosed by the Tsai reference based upon a sheet production inspection apparatus which detects sheet defects on a sheet product production line because these are entirely different matters and problems and one of ordinary skill in the art would not have been motivated to combine them.

One of ordinary skill in the art would not have been motivated to modify a document scanner based upon a sheet defect inspector. Thus, the references would not have been combined.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, the Examiner does not even support the combination by identifying a reason for combining the references.

The Examiner alleges that one of ordinary skill in the art would have been motivated to modify the floppy diskette document scanner disclosed in the Tsai reference with the sensor 7 used in the sheet product production line streak defect detector disclosed by the Arai et al. reference to detect when a head of a manuscript arrives at a position for scanning. However, the sensor 7 disclosed by the Arai et al. reference does not detect when a head of a manuscript arrives at a position for scanning and neither of these reference disclose performing such a function. Rather, the Arai et al. reference discloses using the sensor 7 to determine the mere presence of a sheet product (col. 4, lines 16-20).

Further the Examiner incorrectly alleges that “the two combined references . . . are not as applicant alleges toward the floppy diskette drive of the computer area (sic).” While the Applicant agrees that the Arai et al. reference has absolutely nothing to do with a floppy diskette drive bay of a computer case, clearly the Examiner has not even read the Abstract of the Tsai reference if the Examiner continues to make this allegation.

The Tsai reference states:

“The invention disclosed a scanner with the function of providing transmitted light source and reflective light source which can be adapted to the location of a floppy diskette driver of a computer.” (Abstract, emphasis added)

“The invention relates to an apparatus for reading image from an original sheet . . . which can be adapted to the floppy diskette driver of a computer.” (emphasis added, col. 1, lines 8-12).

“The structure of an external scanner is complicatedConsidering this structure, it is difficult to integrate an external scanner with a computer and reduce the size of the scanner to the size of a floppy diskette driver.” (emphasis added, col. 1, lines 43-50).

“It is yet a further object of the invention to provide a compact scanner which can be adapted to the location of a floppy diskette driver of the computer.” (emphasis added, col. 1, lines 65-67).

“Therefore, the invention can be so compact that it can be integrated with a computer and built in the location of the floppy diskette driver of a computer.” (emphasis added, col. 3, lines 61 - 63).

The Examiner cannot continue to ignore nor deny that the entire purpose of the Tsai reference is directed to providing a scanner which can be built into the location of the floppy diskette drive bay of a computer case.

The Examiner now alleges that it would have been obvious to combine these references “for the purpose of saving time and energy that scanner waste (sic) in case the reader run out of sheet on the platen or feed tray.” Applicant notes that the Examiner does not provide a citation for such an assertion to any reference. After reviewing the references it is clear that the Examiner does not provide such a citation for such an alleged motivation because none exists.

The Examiner alleges that it would have been obvious to insert the sensor 7 of Fig. 1 of the Arai et al. reference in front of the document tray 203 of Fig. 2 “for the purpose of saving time and energy that scanner waste (sic) in case the reader run out of sheet on the platen or feed tray.” However, there is absolutely no explanation as to how such a sensor would save time and energy. Indeed, the sensor 7 only detects the presence of sheet product 2 to determine whether to trigger scanning. By contrast, the Tsai reference teaches using a selecting device to trigger scanning (col. 3, lines 20-24). Thus, neither of these references disclose providing a sensor 7 for saving time and energy in case the reader run out of sheet on the platen or feed tray as alleged by the Examiner.

Moreover, neither of these references teach or suggest the features of independent claims 2 and 8 including an image scanner for a manuscript that conveys the manuscript past a stationary reading position and the features of independent claim 14 (from which claim 18 depends) including a manuscript type judging means which judges the type of the manuscript by transmitting light through the manuscript or by reflecting light from the manuscript.

Contrary to the Examiner’s allegation the Tsai reference does not teach or suggest a manuscript type judging means which judges the type of the manuscript by transmitting light through the manuscript or by reflecting light from the manuscript. Rather, the Tsai reference merely discloses that “The operation of the transmitted light source 2021 and the reflective light source 2022 is controlled by a selecting device (not show (sic)). . . The selecting device can be implemented in either software or hardware.” The Tsai reference does not teach or suggest how the selecting device determines the type of manuscript at all, let alone disclose a manuscript type judging means which judges the type of the manuscript by transmitting light

through the manuscript or by reflecting light from the manuscript as recited by claim 14 from which claim 18 depends.

The Examiner merely alleges, without any citation at all, that the selective device “there by (sic) Judge (sic) whether said manuscript is such a type of manuscript as read by a transmitting light transmitting through said manuscript or such another type of manuscript as read by a reelected (sic) light reelected (sic) by said manuscript.” Clearly, this is impermissible use of hindsight.

Further, contrary to the Examiner’s allegations, the Tsai reference discloses a scanner which positions a transparent document tray 203 within the housing 201. Specifically, the document tray 203 extends out of the housing in response to a user operating a controller, receives a document to be scanned and then retreats back into the housing (col. 3, lines 16-21). The scanner disclosed by the Tsai reference then moves a double-function carriage 202 which contains light sources 2021 and 2022 and mirror 207 with which the scanner scans the document (col. 3, lines 22-32). The document tray 203 containing the document remains stationary while the reading position is “driven along the surface of the sheet.” (col. 3, lines 25-26). Thus, in the same manner as described with respect to the conventional devices in the background of the present specification, the Tsai reference teaches maintaining the document stationary while the lights and mirrors are moved.

In other words, the Tsai reference discloses a moving reading position which moves along with the movement of the double-function carriage 202. Therefore, the Tsai reference does not teach or suggest a stationary reading position as recited by claims 2 and 8.

The Examiner appears to continue to assert that the Tsai reference discloses a stationary reading position. The Examiner embarks upon a long explanation of how the

document tray 203 moves in and out of the housing. However, the movement of the document tray is completely irrelevant.

The Examiner appears to be asserting that the reading position, which corresponds to the position of the carriage 202, is stationary. This is utterly false. The Tsai reference clearly explains that the carriage 202 moves the reading position. "Conveying device 2052 will move double-function carriage 202" (col. 3, lines 9-11). In other words, the reading position of the Tsai reference moves and is not stationary (contrary to claims 2 and 8 and as recited in new dependent claim 24).

Claims 2 and 8 both clearly recite moving the manuscript past a stationary reading position when scanning. This is entirely the opposite from what is disclosed by the Tsai reference.

Thus, contrary to the Examiner's allegations, the Tsai reference does not teach or suggest moving a manuscript using the conveying roll driving means 315. As explained above, the conveying mechanism 314 moves the double-function carriage 301, the conveying mechanism 314 does not move the manuscript.

The Tsai reference is similar to the scanners described in the background of the present specification in that these scanners also maintain the document at a stationary position while the reading position traverses the document along with the carriage. Therefore, the Tsai reference is incapable of providing the significant advantages provided by the present invention as a result of the predetermined stationary reading position and conveying the manuscript past this stationary position **rather than moving the sensor** carriage past a stationary manuscript.

The Arai et al. reference does not remedy the deficiencies of the Tsai reference. Indeed, as explained above the Arai et al. reference is not capable of performing transmission

Contrary to the Examiner's allegation the conveying device 314 of the Tsai reference is not a driven side conveying roll. Rather, the conveying device 314 comprises a cable or belt which extends between rotating devices 315.

The Examiner does not even establish a prima facie case of anticipation, because the Examiner does not even allege that the Tsai reference discloses a manuscript sensor. Indeed, the Examiner admits that the Tsai reference "does not disclose a manuscript sensor" (page 6, line 3 of the Office Action).

Contrary to the Examiner's allegation the Tsai reference does not teach a light-electricity conversion means which converts when the manuscript is started to move. The Examiner alleges that the Tsai reference teaches that the conveying roll moves the manuscript. However, this is completely false.

Rather, as explained above, "When the motor is energized, it drives rotating devices 315 which moves conveying device 314. Conveying device 314 drives the double-function carriage 301 in longitudinal direction along the surface of the sheet." (Col. 3, lines 54-58). Therefore, contrary to the Examiner's allegation rotating the rotating devices 315 does not move the manuscript. Rather, rotating the rotating devices 315 causes the carriage 301 to move.

Contrary to the Examiner's allegation the Tsai reference does not teach or suggest a manuscript type judging means which judges the type of the manuscript by transmitting light through the manuscript or by reflecting light from the manuscript.

Rather, the Tsai reference merely discloses that "The operation of the transmitted light source 2021 and the reflective light source 2022 is controlled by a selecting device (not show (sic)). . . The selecting device can be implemented in either software or hardware." The Tsai

reference does not teach or suggest how the selecting device determines the type of manuscript at all, let alone disclose a manuscript type judging means which judges the type of the manuscript by transmitting light through the manuscript or by reflecting light from the manuscript as recited by claim 14.

The Examiner merely alleges without any citation at all that the selective device “there by (sic) Judge (sic) whether said manuscript is such a type of manuscript as read by a transmitting light transmitting through said manuscript or such another type of manuscript as read by a reelected (sic) light reelected (sic) by said manuscript.” Clearly this is impermissible use of hindsight.

Therefore, the Examiner is respectfully requested to withdraw this rejection of claims 14-17 and 20.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1-6, 8-12, 14-18 and 20-24, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

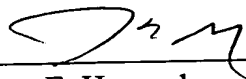
Serial No. 09/492,521
Docket No. KN-43-US

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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